

What is claimed is:

1. An optical filter comprising:

a mirror including a plurality of first dielectric layers having a first index of refraction and a plurality of second dielectric layers having a second index of refraction,

wherein a plurality of said first dielectric layers have an integer quarter wave optical thickness and at least one of said first dielectric layers has a non-integer quarter wave optical thickness, and

wherein a plurality of said second dielectric layers have an integer quarter wave optical thickness and at least one of said second dielectric layers has a non-integer quarter wave optical thickness.

2. The optical filter of claim 1 wherein said first dielectric layer having a non-integer quarter wave optical thickness has a physical thickness different than a physical thickness of said first dielectric layers having an integer quarter wave optical thickness.

3. The optical filter of claim 1 wherein said second dielectric layer having a non-integer quarter wave optical thickness has a physical thickness different than a physical thickness of said second dielectric layers having an integer quarter wave optical thickness.

4. The optical filter of claim 1 further comprising:

a second mirror including a plurality of first dielectric layers having said first index of refraction and a plurality of second dielectric layers having said second index of refraction; and,

a spacer positioned between said mirror and said second mirror.

5. The optical filter of claim 1 wherein said optical thickness of said first dielectric layer having a non-integer quarter wave optical thickness is selected to enhance transmission of a predetermined wavelength.

6. The optical filter of claim 5 wherein said optical thickness of said first dielectric layer having a non-integer quarter wave optical thickness is selected to maintain a predefined reflectivity for said mirror.

7. The optical filter of claim 5 wherein said predetermined wavelength corresponds to a service channel in an optical communications system.

8. The optical filter of claim 1 wherein said optical thickness of said second dielectric layer having a non-integer quarter wave optical thickness is selected to enhance transmission of a predetermined wavelength.

9. The optical filter of claim 8 wherein said optical thickness of said second dielectric layer having a non-integer quarter wave optical thickness is selected to maintain a predefined reflectivity for said mirror.

10. The optical filter of claim 8 wherein said predetermined wavelength corresponds to a service channel in an optical communications system.

11. An optical communication device, comprising:
an optical communication path; and

a plurality of optical filtering elements coupled to said optical communication path, each of said plurality of filtering elements being configured to add/drop a plurality of optical signals, each of which being at a respective one of a plurality of wavelengths, and a service channel.

12. An optical communication device in accordance with claim 11, wherein said optical communication path is a continuous optical communication path.

13. An optical communication device in accordance with claim 11, wherein each of said plurality of optical filtering elements includes an optical interference filter.

14. An optical communication device, comprising:

an optical communication path, said optical communication path being configured to carry a plurality of optical signals, each at a respective one of a plurality of wavelengths, and a service channel optical signal at a wavelength different than said plurality of wavelengths; and

5 an optical interference filter coupled to said optical communication path, said optical interference filter being configured to select a grouping of said plurality of optical signals and said service channel optical signal.

15. An optical communication device in accordance with claim 14, wherein said plurality of wavelengths are within a range about 1550 nm, and said wavelength of
10 said service channel optical signal being spectrally spaced from said plurality of wavelengths.

16. An optical communication device in accordance with claim 15, wherein said wavelength of said service channel is substantially equal to 131 nm.

17. An optical communication device in accordance with claim 15, wherein said
15 wavelength of said service channel is within a range of and including 1625 nm to 1650 nm.